

REMARKS

Claims 1-5 and 7-30 are pending in this application. By this amendment, claim 30 has been amended. These amendments are being made to facilitate early allowance of the presently claimed subject matter. Applicants reserve the right to pursue the full scope of the subject matter of the original claims in a subsequent patent application that claim priority to the instant application. Reconsideration in view of the above amendments and following remarks is respectfully requested.

Entry of this amendment is proper under 37 C.F.R. §1.116(b) because the amendment: (a) places the application in condition for allowance as discussed below; (b) does not raise any new issues requiring further search and/or consideration; and (c) places the application in better form for appeal. Accordingly, Applicants respectfully request entry of this amendment.

In the Office Action, claims 1-4 and 7-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Daubenspeck et al. (US Patent No. 6,498,385), hereinafter "Daubenspeck"; and, claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Daubenspeck in view of Huggins (US Patent No. 5,953,577). Applicants respectfully submit that the claimed invention is allowable for the reasons stated below.

With respect to claim 1, Applicants submit that Daubenspeck does not disclose, *inter alia*, "a fuse element that [] is located in a non-last metal layer". The Office's assertion that "the fuse [] is the (non-last metal layer (LM-1 layer))" is entirely without support in Daubenspeck. (See page 2, item 2) In fact, the specification and figures throughout Daubenspeck only teach a process of constructing a metal structure in figures 1A through 1G that shows the fuse 114 is clearly never in the LM-1 layer. (See e.g., Col. 9, lines 33-37; Col. 10, lines 8-11).

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Moreover, Applicants submit that Daubenspeck does not disclose, *inter alia*, “**wet etching the fuse element to open the fuse**”, (emphasis added)(Claim 1). The Summary of the Invention of Daubenspeck discloses “electrically testing and **laser deleting the fuse**”. (emphasis added)(Col. 4, lines 2-3). The contrasting method in Daubenspeck is further described, in general, at col. 10, line 24-66, and shown leading up to fuse opening, at FIGS. 1D-1G. Further, statements such as “[f]ollowing laser deletion of fuse line 114c” are clear indications of the only method in which the fuse is opened in Daubenspeck. (See col. 10, line 64) Finally, step 510 of a flow diagram also discloses the use of a laser to blow a fuse. (See col. 11, lines 40-44; Fig. 5)

Further, the Examiner’s allegation in the Action that “Daubenspeck, in col 10, lines 53-67, in col 11, lines 1-22, discloses [] wet etching the fuse elements leaves behind the metal line segments of the terminal intact, but removes the fuse (copper segments, therefore removing the contact of the liner)(see figures 7A through 7D)” is without merit. Page 2, item 2. Respectfully, it appears that the Office is mixing embodiments. The embodiment that Daubenspeck discusses and shows at figures 1A through 1G finishes with the laser deletion of fuse line 114c. See e.g., Col. 10, line 64 – Col. 11, line 3. Contrastingly, there is no substantive discussion regarding fuse elements, nor their removal, in the embodiment shown in figures 7A – 7D. In view of the foregoing, Daubenspeck does not disclose each and every feature of claim 1.

With respect to claims 12 and 19, as explained above, Applicants submit that Daubenspeck does not disclose, *inter alia*, that “the fuse element is located in a non-last metal layer.” Specifically, as discussed above, fuse line 114c of Daubenspeck is in the last metal layer, not a non-last metal layer. In view of the foregoing, Daubenspeck does not disclose each and every feature of claims 12 and 19.

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With respect to claim 26, Applicants submit that Daubenspeck does not disclose, *inter alia*, that “each terminal is fully-landed on an upper surface of a wire of the fuse element.” In the Action, the Office alleges that “fuse includes a wire and the terminals are positioned (fully landed) on the fuse wire (copper)(see figure 1G).” Page 3, item 2. In Daubenspeck, fuse terminals 114a and 114e are in the same layer as fuse line 114c, and, in fact, extend partially downward away from the fuse line 114c. Therefore, the terminals are not positioned above fuse line 114c; hence, logically they cannot fully land on an upper surface of a wire of the fuse element. (See FIG. 1G of Daubenspeck.) In view of the foregoing, Daubenspeck does not disclose each and every feature of claim 26.

With respect to claim 30, Daubenspeck does not disclose the claimed invention including the opened fuse line including a metal liner. Daubenspeck discloses a liner exists below segment 114c. (Col. 10, lines 64-65). However, Daubenspeck removes the fuse line 114c and “the liner below segment 114c.” (Id.) That is, Daubenspeck does not disclose, *inter alia*, an opened fuse area with “the metal liner being intact immediately adjacent to, and in non-contact, with a plurality of terminals.” In view of the foregoing, Daubenspeck does not disclose either “a metal liner of a fuse element” or “the metal liner being intact[.]” (Claim 30).

Moreover, Applicants submit that Daubenspeck does not disclose, *inter alia*, “fuse element having been removed via wet etching to generate the opened fuse area”, (emphasis added)(Claim 30). Similar to the discussion regarding claim 1 (above), Daubenspeck does not teach, or suggest, using an etch process to open a fuse. In view of the foregoing, Daubenspeck does not disclose each and every feature of claim 30.

Regarding the "Response to Arguments" section, Applicants respectfully submit that *inter alia* the Office's assertion that "the instant application illustrates the fuse element (reference 16) and the liner (reference 17) as the one and the same" is incorrect. For example, in Figures 1 and 3-7, elements 16 and 17 are distinct and separate items as indicated by the use of arrowheads to point to fuse element 16, while no arrowheads (i.e., straight lines) are used to point to metal liner 17. Further, in figure 8, fuse element 16 (now removed) is indicated with a phantom (i.e., dotted) line, while metal liner 17 (remaining) is indicated by a solid line. Finally, the specification additionally supports this distinction between fuse element 16 and liner 17. "That is, each metal liner 24 is on top of wire 12 of fuse element 16, and does not contact a metal liner 17 that surrounds at least a portion of fuse element 16." (Page 4, lines 10-11) "Note, however, metal liner 17 material, as shown in FIG. 8, is not on top of fuse element 16 and, therefore, does not prevent wet etching of fuse element 16." (Page 6, lines 18-20).

In view of the foregoing, Daubenspeck does not anticipate the current invention. Accordingly, Applicants respectfully request withdrawal of the rejections.

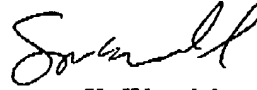
The dependent claims are believed allowable for the same reasons stated above, as well as for their own additional features.

CONCLUSIONS

Applicants respectfully submit that the application is in condition for allowance. Should the Examiner believe that anything further is necessary to place the application in better

condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,



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